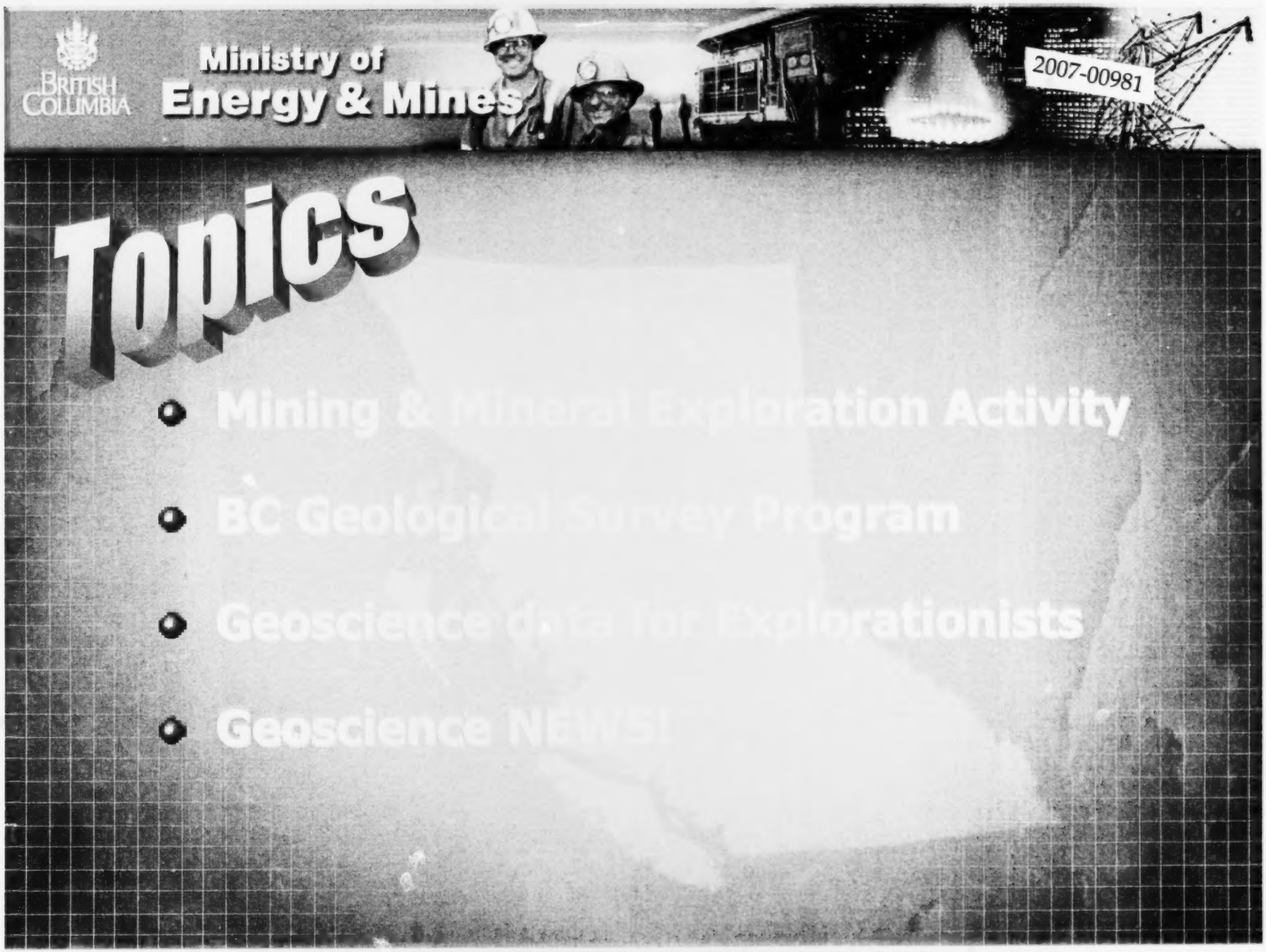
Geoscience Supporting Exploration and Mine Development in British Columbia

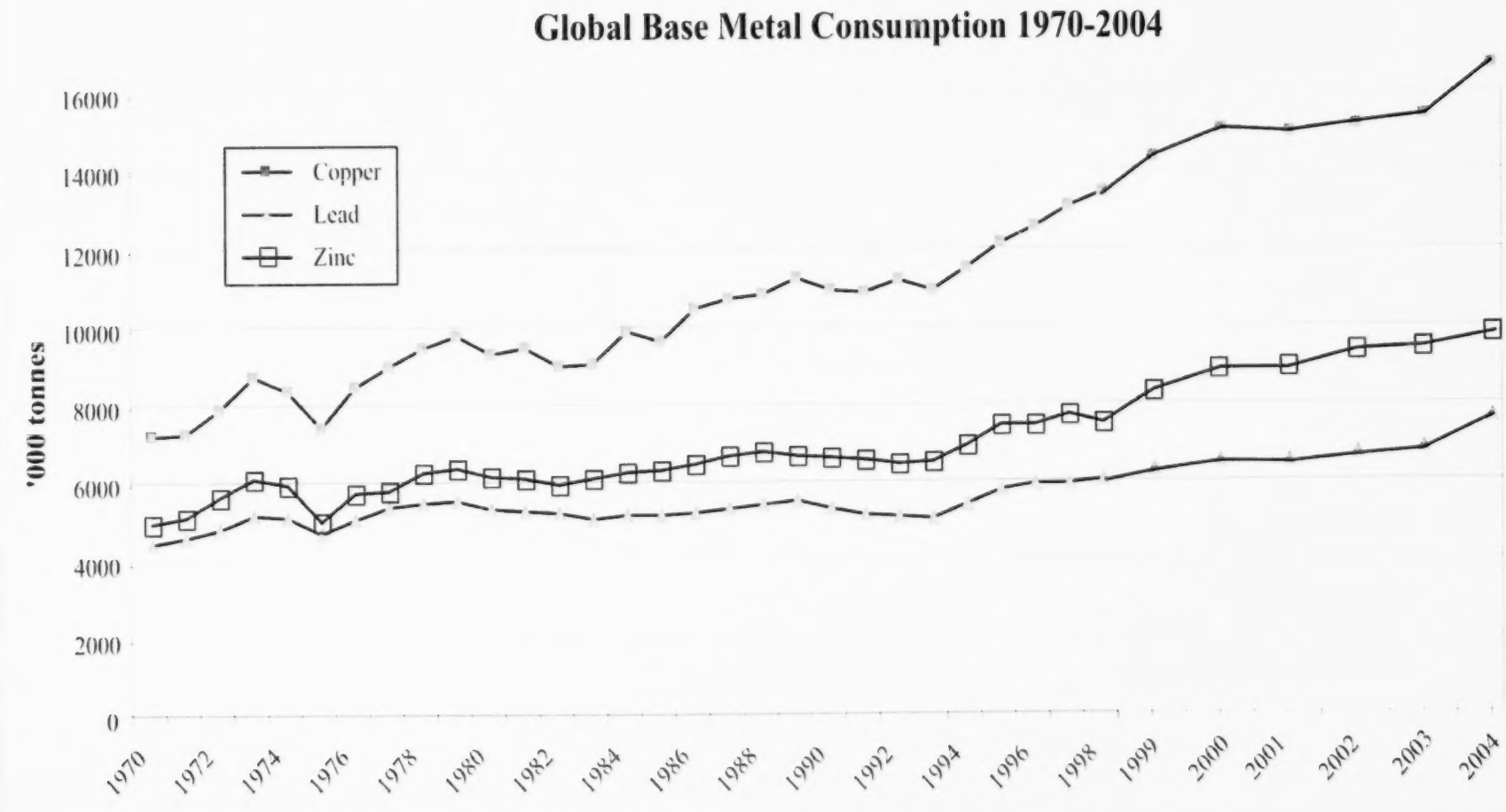
PDAC March 2005
by Brian Grant, PGeo

PDAC Booth 732


BRITISH COLUMBIA
Ministry of
Energy & Mines
2007-00981
Topics
Mining & Mineral Exploration Activity
BC Geological Survey Program
Geoscience data for Explorationists
Geoscience NEWS!

BRITISH COLUMBIA

Global Trends : Demand



Ministry of Energy & Mines

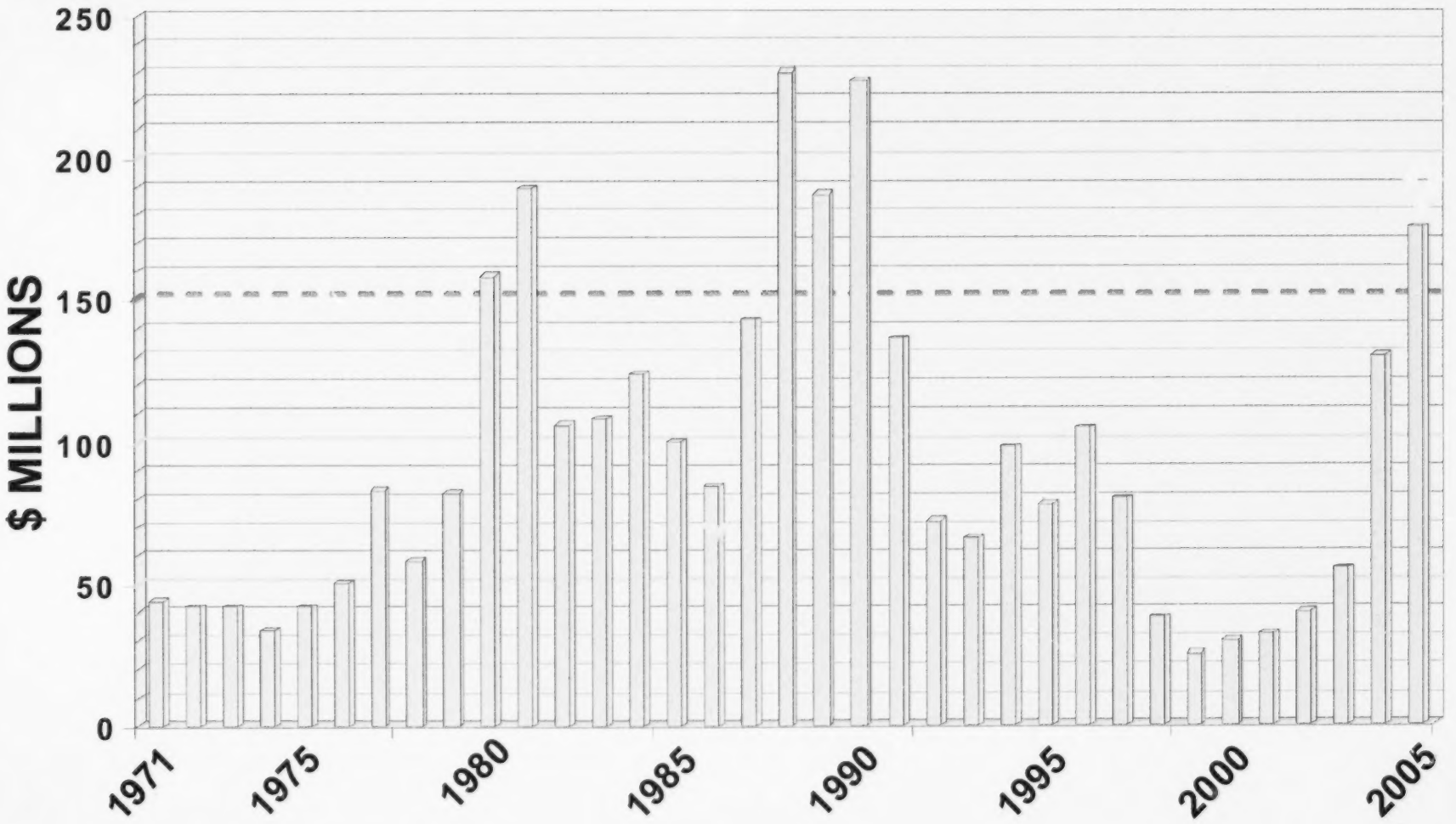
World's Large and Giant Copper & Gold Ore Deposits

Large&GiantDepositLocation

- epithermal copper (gold, silver)
- porphyry copper
- porphyry copper, gold
- porphyry copper, gold, molybdenum
- porphyry copper, molybdenum
- porphyry gold
- sedimentary exhalative sulphide
- volcanic-associated massive sulphide

BRITISH COLUMBIA

BC Exploration Investment 1971-2005



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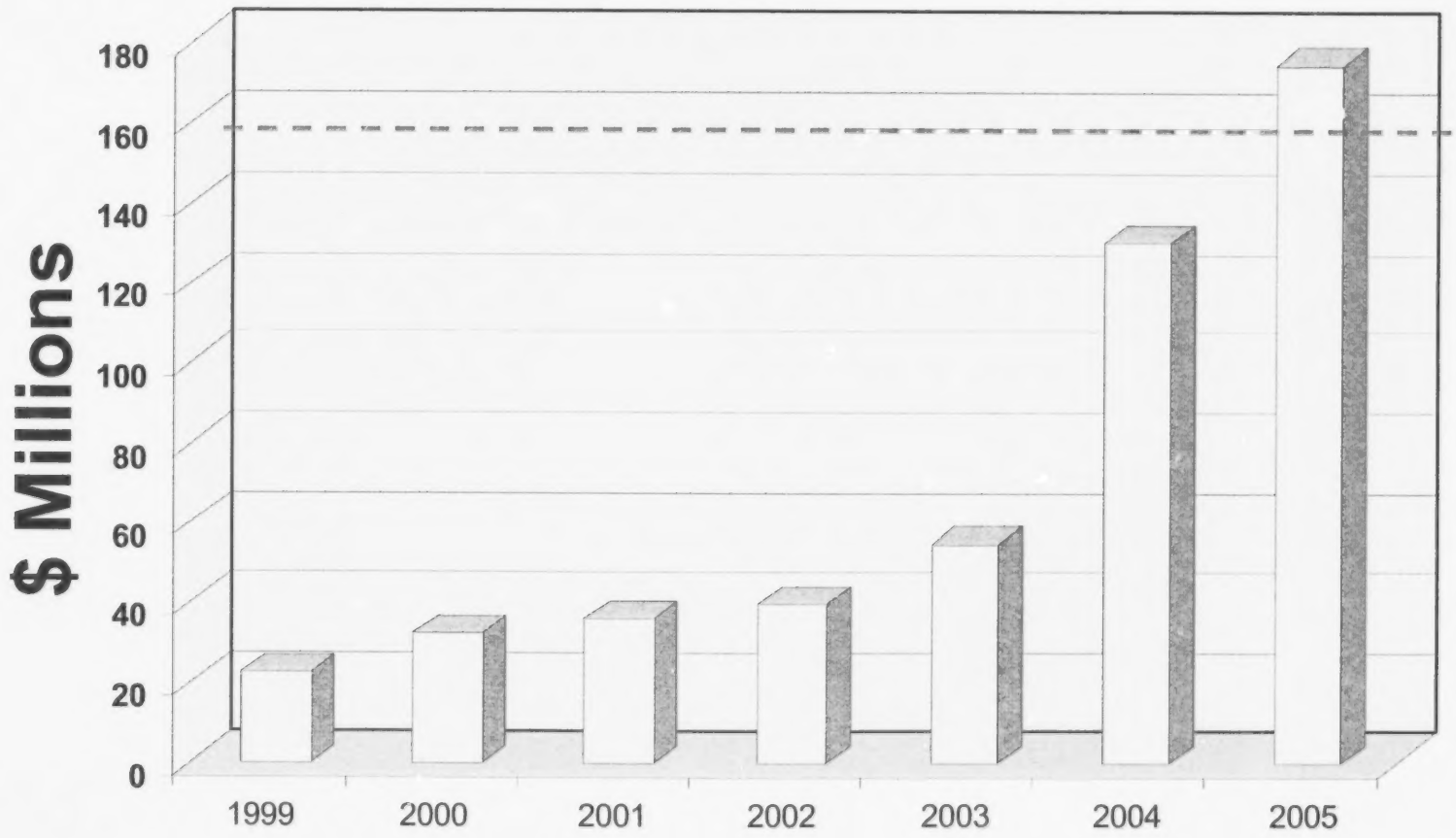
BC Exploration Investment 1999-2005



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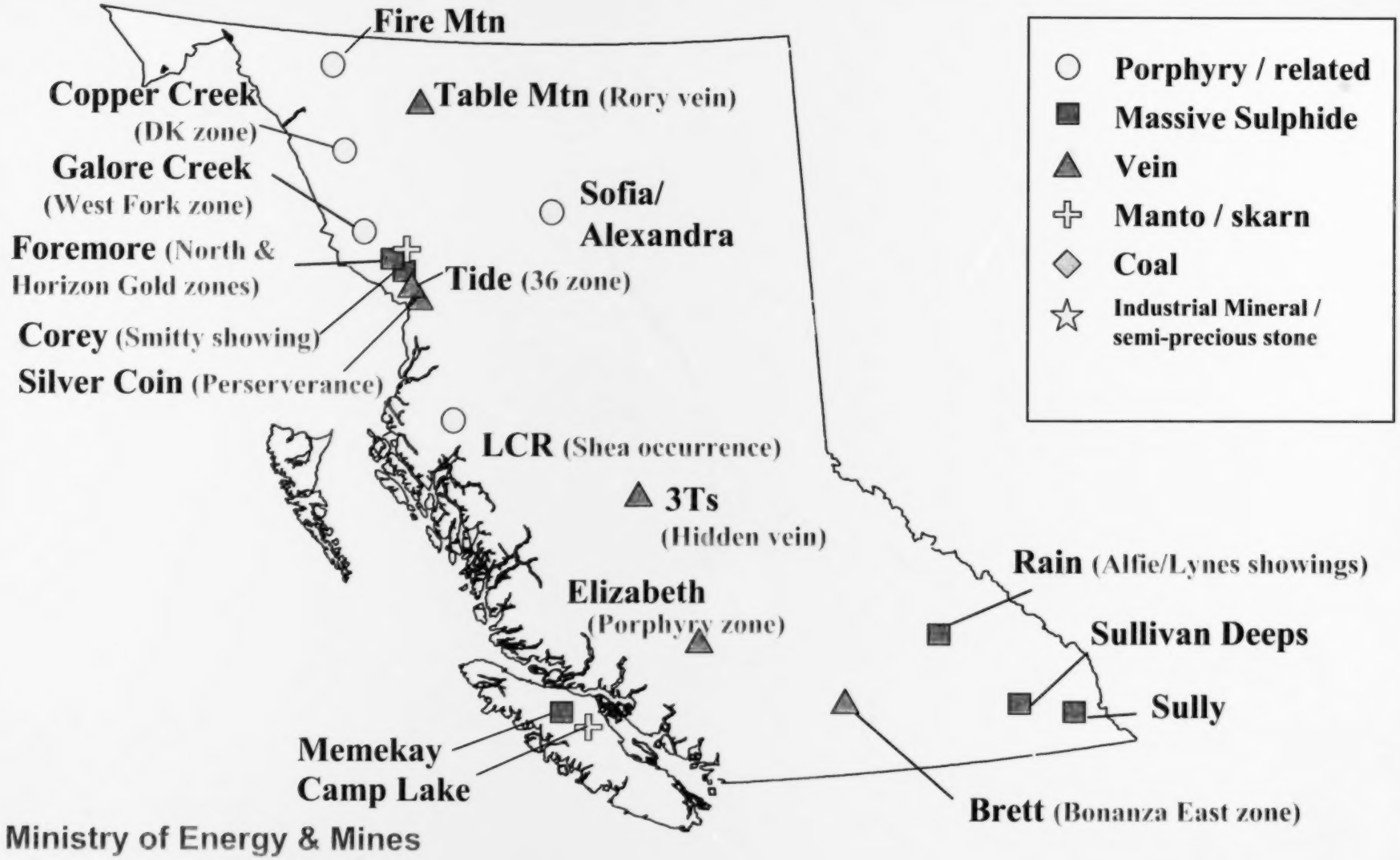
Operating Mines 2004

Ministry of Energy & Mines

BRITISH COLUMBIA
Ministry of Energy and Mines
Mining and Minerals Division
Geological Survey Branch
British Columbia Mines and Major Exploration Projects 2004
Top 100 Exploration Projects
Porphyry / related
Massive sulphide
Vein
Skarn / manto
Coal
Magmatic
Industrial Minerals commodity codes
Ag - Aggregate
Ba - Barite
Bn - Bentonite
Bs - Building stone
Cy - Clay
Do - Dolomite
Fe - Fullers Earth
Gy - Gypsum
Ls - Limestone
Mg - Magnesite
Mr - Magnesite
Mw - Mineral wool
Pu - Pumice
Sh - Shale
Si - Silica
Ze - Zeolite
Adanac
Yellow Jacket
Titan
Atlin
Fire Mtn
New Polaris
Thorn
Dease Lake
Turnagain
Copper Creek
GBR
Kutcho Creek
GJ
Schaft Creek
Copper Canyon
Foremore
RDN
Corey
Eskay district
Kerr-Sulphurets
Tide
Summit Lake
Todd Creek
Del Norte
Al
Lawyers
Shasta
Brenda
Pil North
Sickle Creek
Atty
Bear
Northstar
Kaza
Lorraine
QCM
Lossan-Goodrich
Lustdust
Wapiti
Mt Milligan
Fran
Star
LCR
Kalum
Louise Lake
Prince Rupert
Bob Creek
Seel
3Ts
Mosquito Creek
Myrtle
Frank Creek
Spanish Mtn
Murphy Lake
Williams Lake
Woodjam
Ann North
Iron Lake
Friendly Lake
Bill and Cross
Ruddock Creek
Big Bend
McKinnon Creek
Revelstoke
Elizabeth
Bonaparte
BRX
Max
Bingay
Getty North
North Valley
Rabbit North
Barnes Creek
Sullivan Deeps
Merry Widow
Fanny Bay
Randi
Brett
Elk
Kelowna
Axe
Willa
Pakk
Fran
Moyie West Block
OK
GK
Camp Lake
Princeton
Abo Gold
Panorama Ridge
Kena
Iron Range
Union
IXL
Carolin Gold
Golden Crown
Lexington-Lonestar
Old Nick
Redford
Jasper
Pearson

20 New Discoveries - 2004



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Potential New Development Projects

2004

18 Projects

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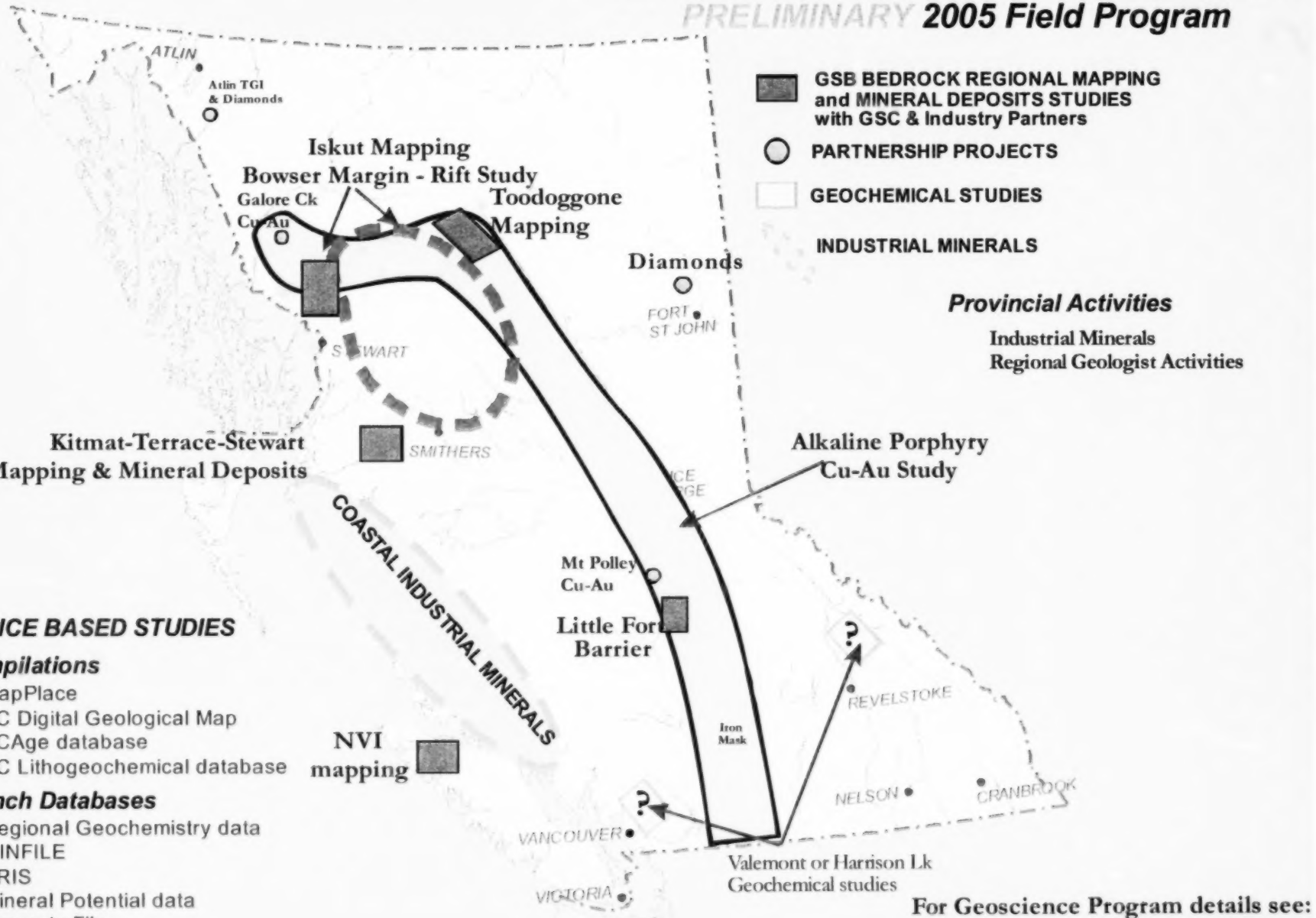
British Columbia Geological Survey Branch

PRELIMINARY 2005 Field Program



OFFICE BASED STUDIES

Compilations

- MapPlace
- BC Digital Geological Map
- BCAge database
- BC Lithogeochemical database

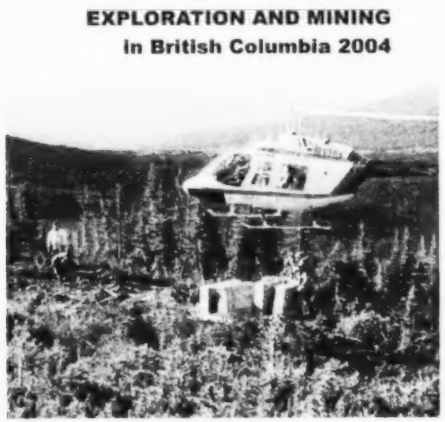
Branch Databases

- Regional Geochemistry data
- MINFILE
- ARIS
- Mineral Potential data
- Property File

For Geoscience Program details see:
http://www.em.gov.bc.ca/geology

Geoscience Publications

- Geological Maps & Reports ~ 3000+ publications
- Ministry Website ~ 12 000 pages
- Geological Fieldwork 1200+ manuscripts
- Annual Reports 1874-2005 130+ reports



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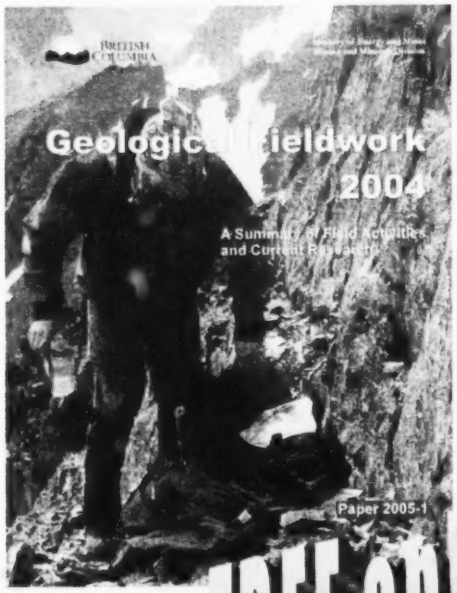

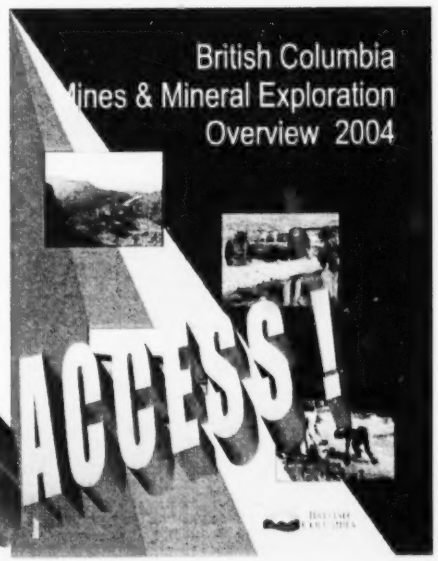

FREE online ACCESS !

BRITISH COLUMBIA

Geoscience Digital Data

- **MapPlace** — 4 million hits/year + 100s of themes
- Mineral Deposit Profiles — ~ 90 descriptions
- **BC Digital Geology map** — ~ 2318+ codes / 28 438+ polygons
- Minfile — ~12 182 descriptions
- ARIS — ~ 27 617 EXPLORATION reports
- **BCAge database** — ~ 7800 records
- **BC Lithogeochemical database** ~ 9000+ records
- COALFile — ~ 850 reports / 10 000 boreholes
- RGS data — ~56 000 geochemical samples
- Mineral Potential — ~ 3823 polygons / [illegible] facts

Ministry of Energy & Mines

BRITISH COLUMBIA

www.MapPlace.ca

"Best site in the world for a geologist."

3 components of MapPlace:

- **main map site** – ***BCGS Geology***
- **search / display** – ***Exploration Assistant***
- **search / display** – ***Mineral Titles***

Over 4 Million hits a year!

"I can do research in one evening on your web site, that once took 2 weeks in the library."

"It has become a valuable tool for many of us in the minerals business."

"The most impressive site I have ever seen."

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BRITISH COLUMBIA

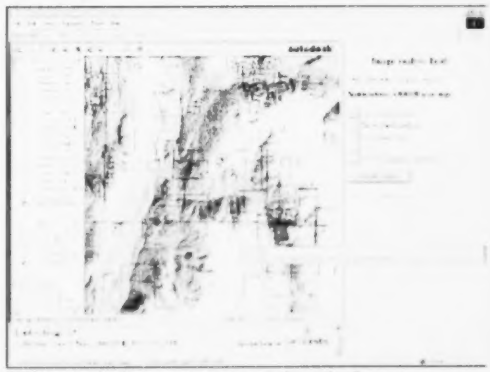
New on MapPlace in 2004

New On MapPlace for 2004

- ✓ **New BC Digital Geology Map !**
- ✓ Updated publication catalogue with footprints
- ✓ **48 Landsat and 40 Aster images**
- ✓ new Aggregate information
- ✓ BC Age Geochronology Database
- ✓Old Growth Management Areas
- ✓ Orthophoto Mosaics
- ✓ **Archived Geophysical Survey footprints and links to data**
- ✓ **Mineral Titles Online grid**
- ✓ Geochemical Anomaly clusters
- ✓ Prospector Reports
- ✓ **Quesnel and Toodoggone geophysical surveys**

Functional Improvements:

- ✓ Publications Search tool (CKMS)
- ✓ 2 NEW Image analyses functions
- ✓ **MapperWrapper tool updates with on-line base-maps, a new Unplugger tool and a Users Manual.**
- ✓ Geochemistry Symbol Resizing tool
- ✓ Link to Corporate Land Resource Data Warehouse
- ✓ Mineral Properties Available in BC form and map
- ✓ Push-button Geology Legend
- ✓ Historic Mines Atlas



Claims in the Stewart Area: example of the Image Analysis Tools

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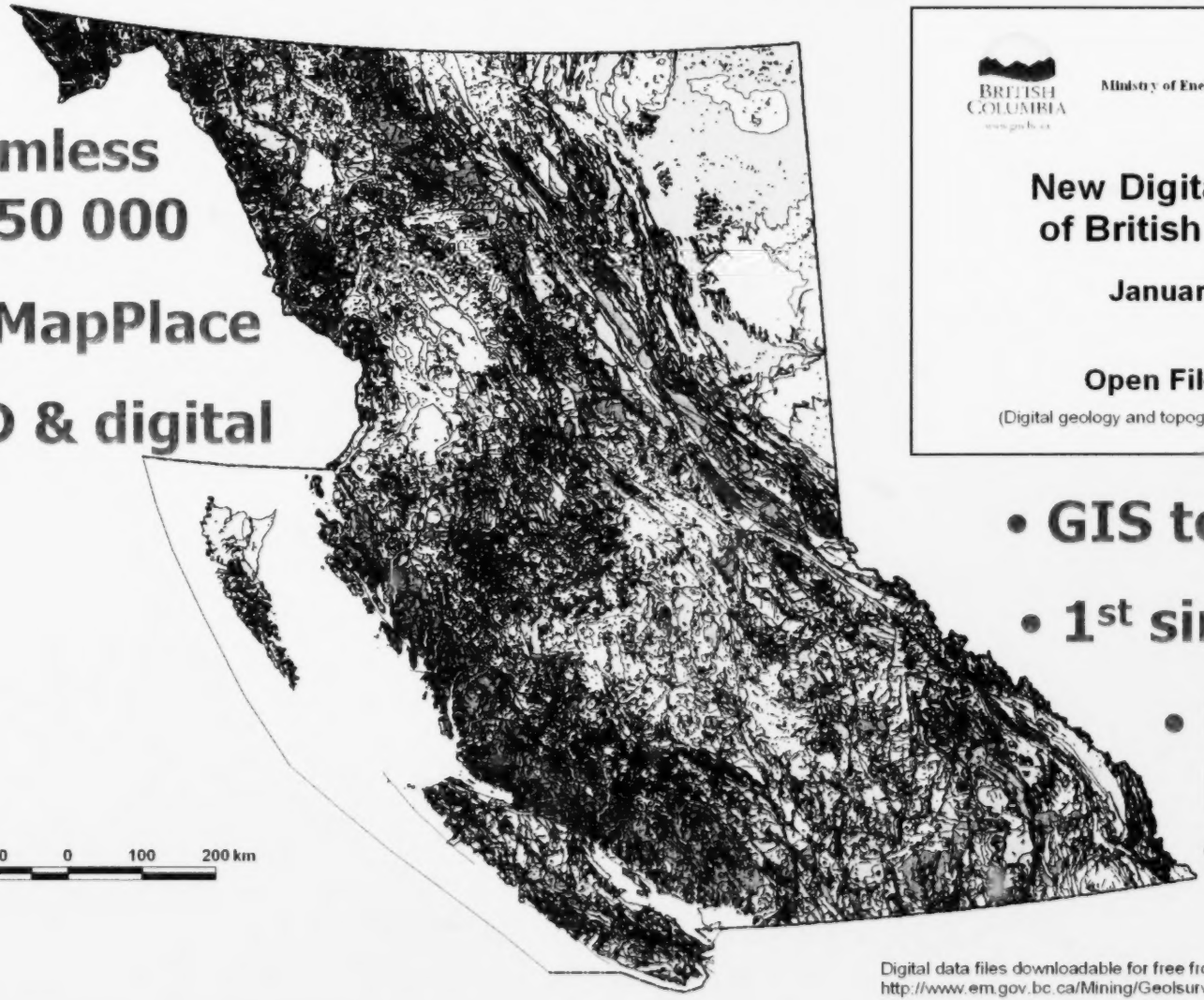
BRITISH COLUMBIA

RGS – Regional Geochemical Survey

- Over 70% of province covered by 1:250 000 map sheet surveys
- ~56 000 geochemical samples & results
- View in MapPlace or download data free

BC Digital Geology Map



- Seamless 1:250 000
- On MapPlace
- DVD & digital

BRITISH COLUMBIA
www.gov.bc.ca

Ministry of Energy and Mines

BRITISH COLUMBIA GEOLOGICAL SURVEY

New Digital Geology of British Columbia

January 2005

Open File 2005-2

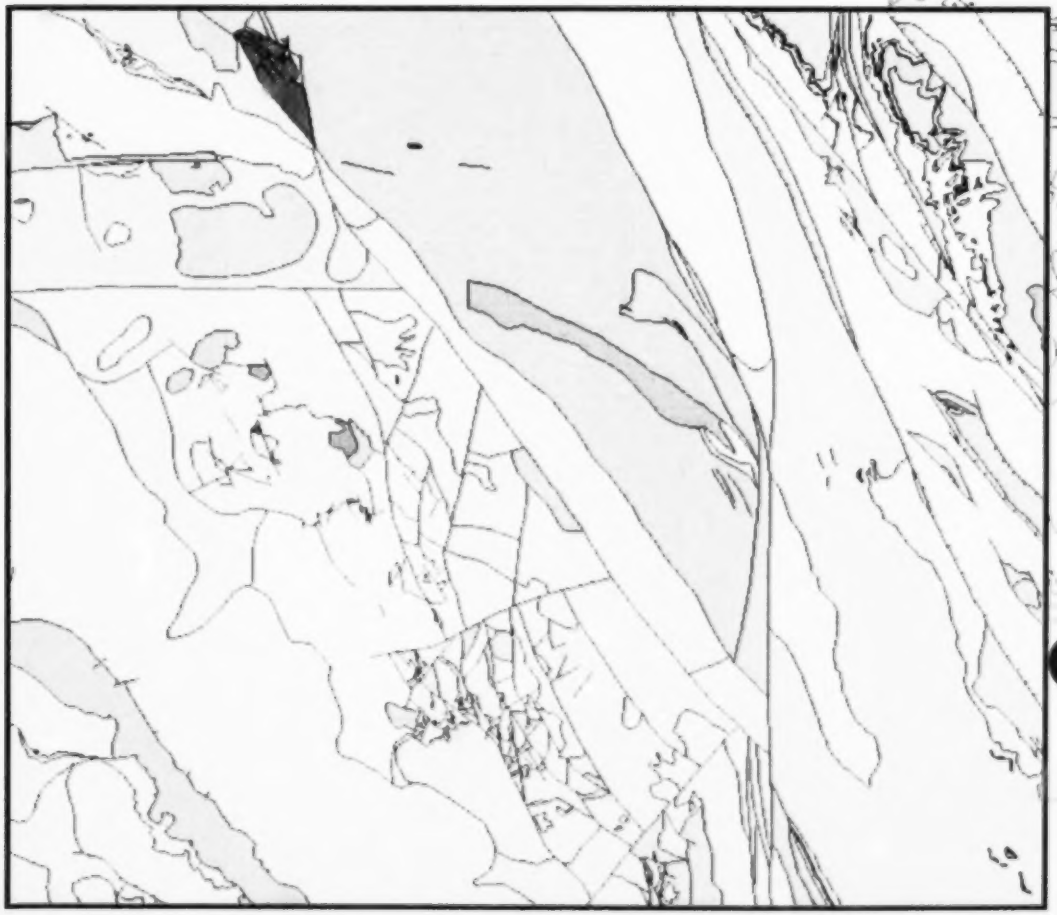
(Digital geology and topography in shapefile format)

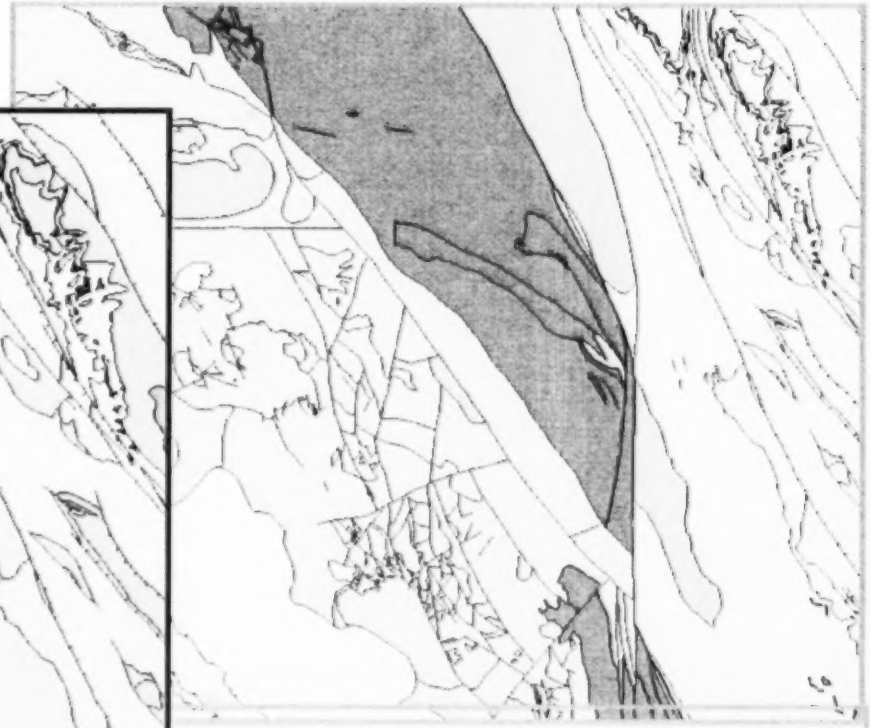
- GIS technology
- 1st since 1970s
- Lithology based vs terranes

Digital data files downloadable for free from :-
http://www.em.gov.bc.ca/Mining/Geolsurv/Publications/catalog/bcgeolmap.htm

BC Digital Geology Map

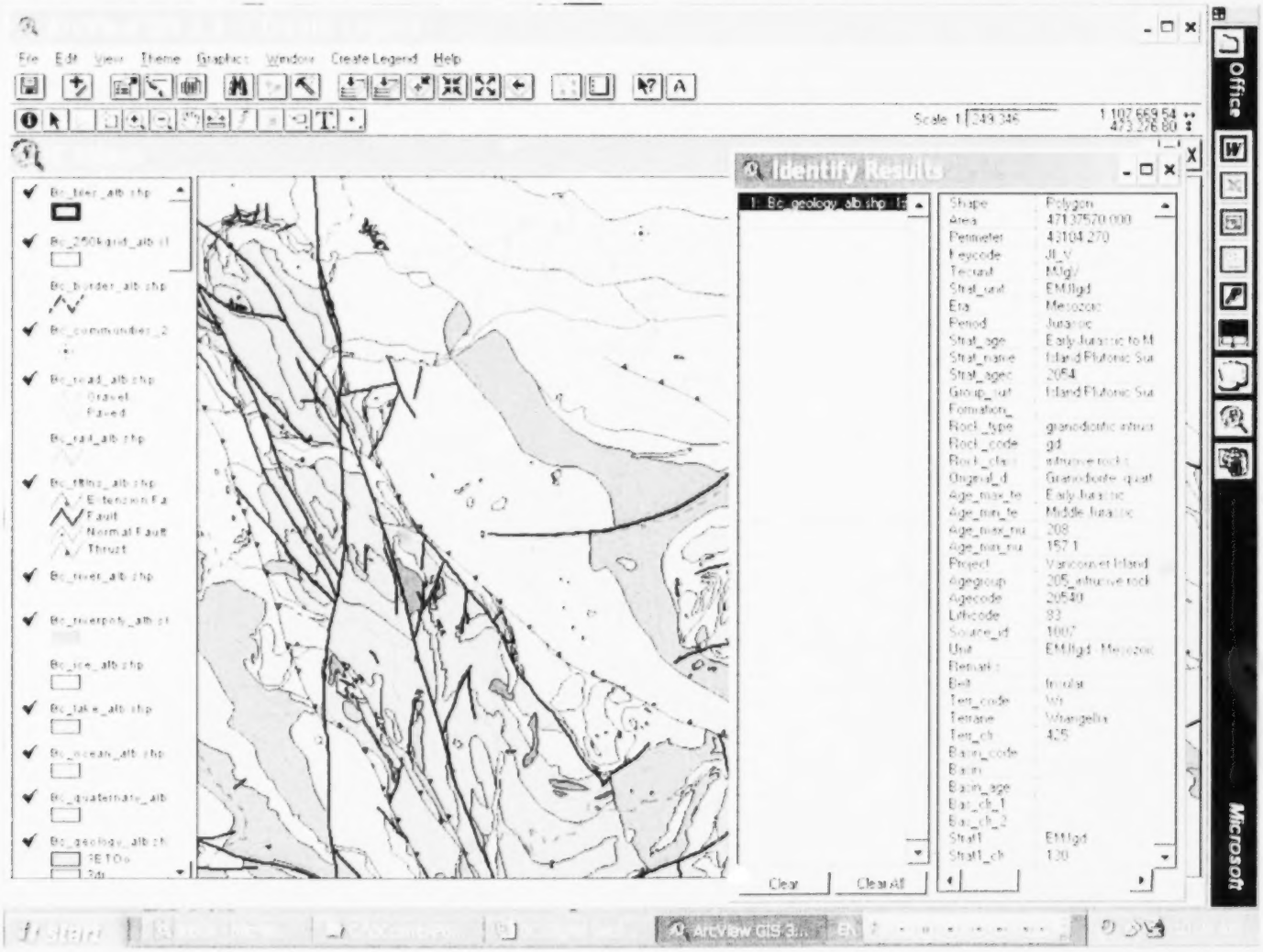
New Provincial Map is Based on Lithology





Older Map is based on Terranes

Extensive Attribute Data



BRITISH COLUMBIA

New Rock Geochem Database

- 9000 BC Geological Survey rock samples
- High quality data
- Includes XRF major oxide, minor element, base and precious metals

- GSB will continue to expand the data set

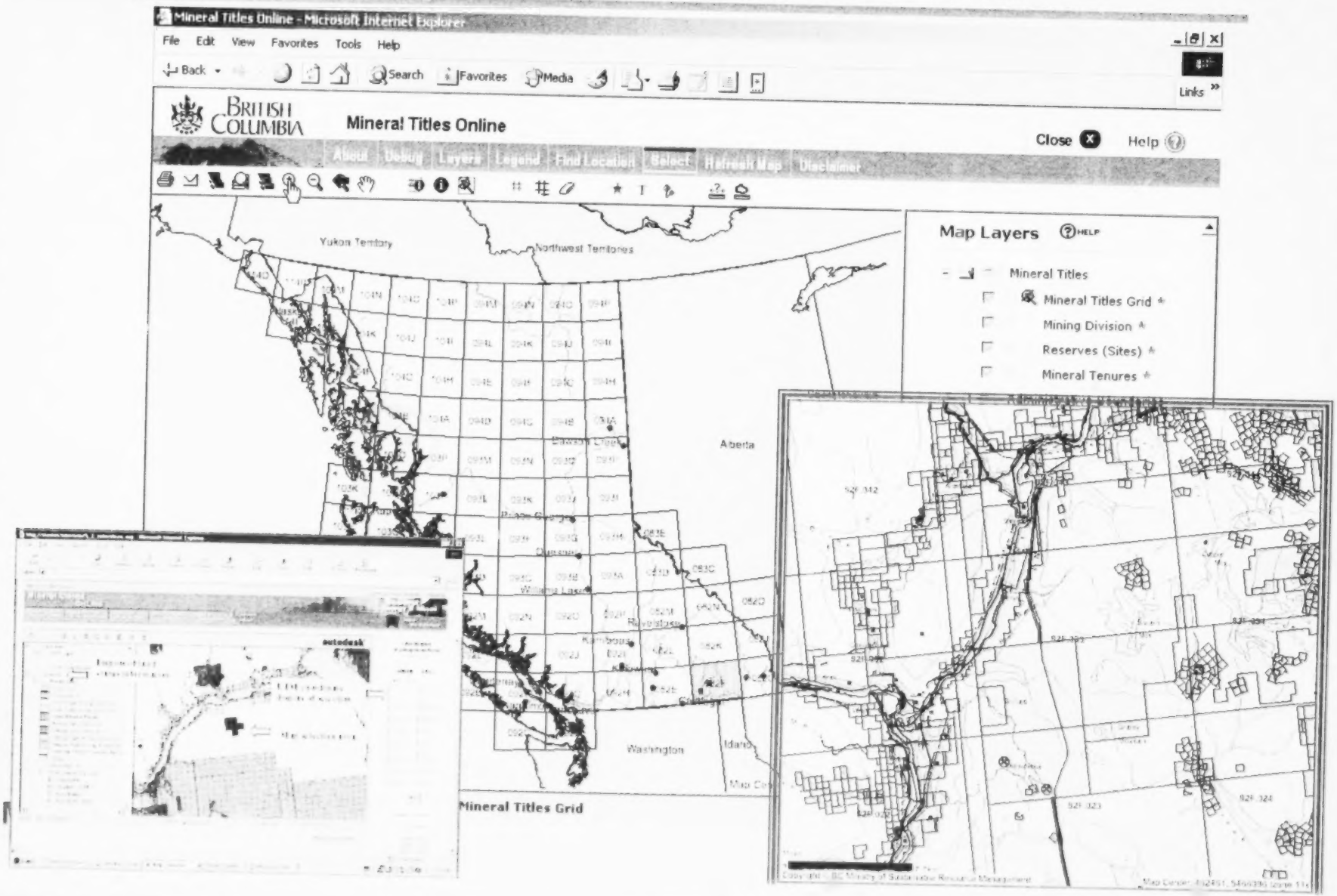
BRITISH COLUMBIA

BC Geoscience News !

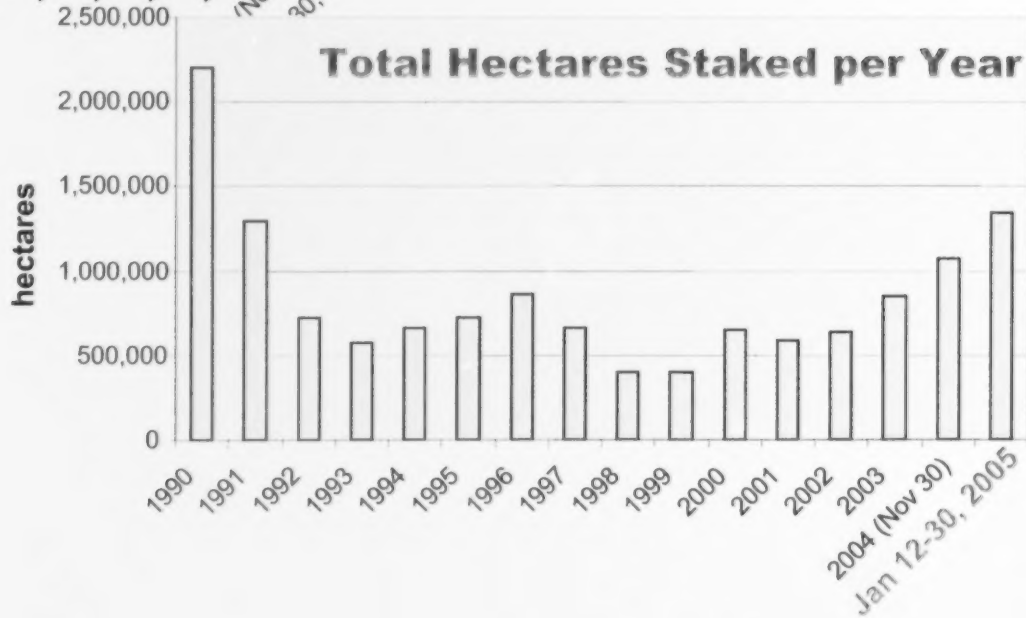
Geoscience Information Leads to New Opportunities !

Mineral Titles Online

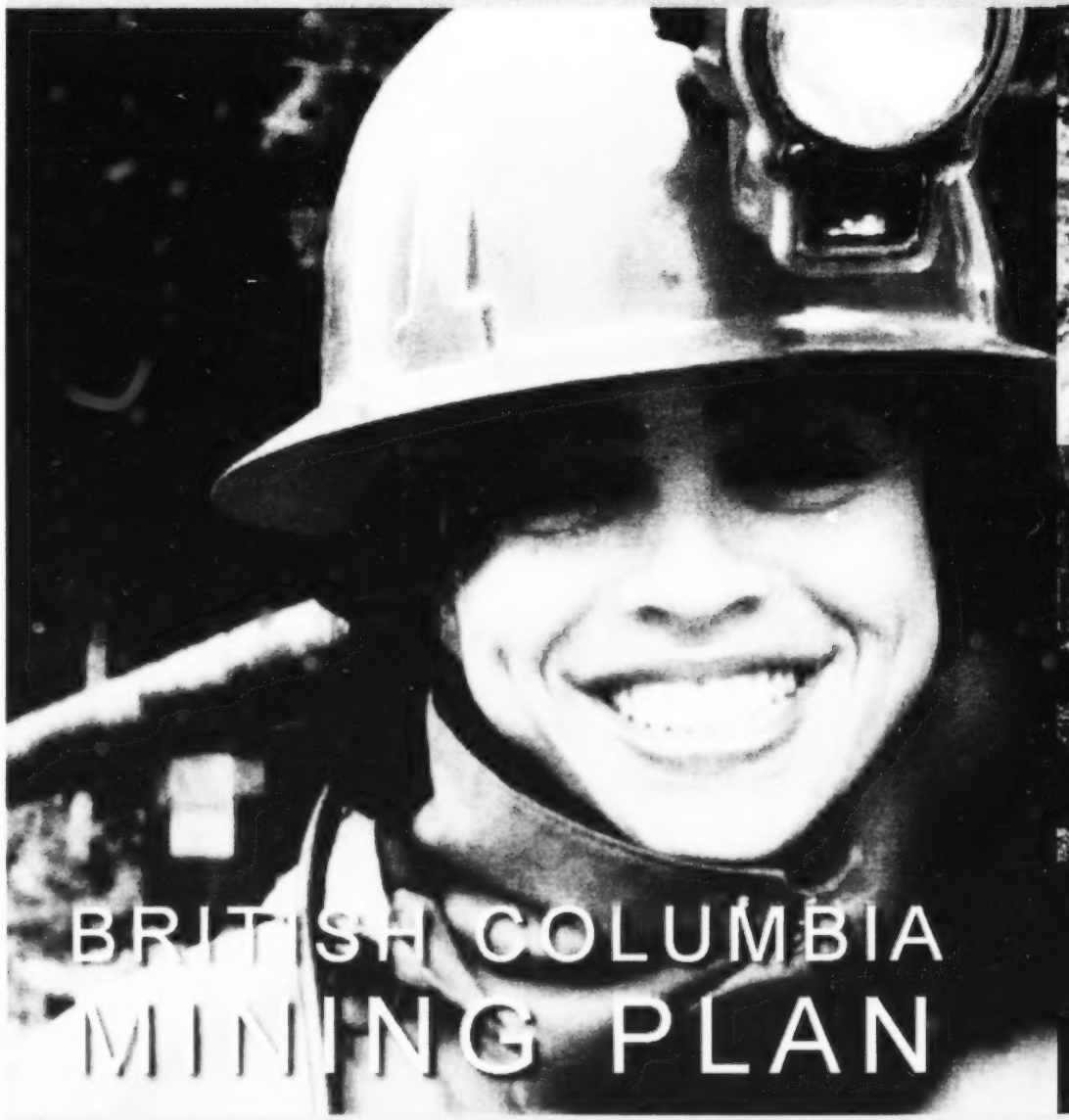
Map Selection with Live Data



Mineral Titles Activity by Year



Ministry of Energy & Mines



BRITISH COLUMBIA
MINING PLAN

BRITISH COLUMBIA

BRITISH COLUMBIA

NEW Geoscience Funding

BC Geological Survey

- $1.5+ Million for Geoscience (operational)
- Three year funding cycle

Geoscience BC

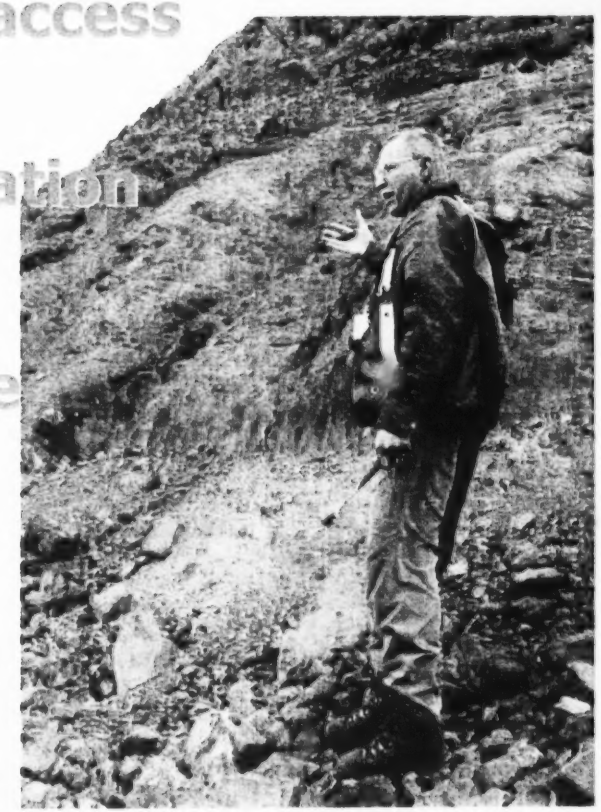
- $25 Million in new funding
- Independent NGO

Targeted Geoscience Initiative

- Federal – Provincial program
- $25 million over 5 years / Canada

Why Explore British Columbia?

- Rich resource potential + variety of target types
- ACCESS to an excellent body of geoscience data
- Reliable & skilled labour force
- Established infrastructure & good access for international trade
- Positive trends in taxation & regulation
- A good environmental record
- Vancouver & BC - centre excellence in mining, exploration & finance
- Government supports Resource Developments



Ministry of Energy & Mines

Thank You !

Brian Grant, PGeo
PDAC March 2005

EXPLORE BRITISH COLUMBIA